

# **Evaluating the Contribution of NASA Remotely-Sensed Data Sets on a Convection-Allowing Forecast Model**

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The Short-term Prediction Research and Transition (SPoRT) Center is a collaborative partnership between NASA and operational forecasting partners, including a number of National Weather Service forecast offices. SPoRT provides real-time NASA products and capabilities to help its partners address specific operational forecast challenges. One challenge that forecasters face is using guidance from local and regional deterministic numerical models configured at convection-allowing resolution to help assess a variety of mesoscale/convective-scale phenomena such as sea-breezes, local wind circulations, and mesoscale convective weather potential on a given day. While guidance from convection-allowing models has proven valuable in many circumstances, the potential exists for model improvements by incorporating more representative land-water surface datasets, and by assimilating retrieved temperature and moisture profiles from hyper-spectral sounders.

In order to help increase the accuracy of deterministic convection-allowing models, SPoRT produces real-time, 4-km CONUS forecasts using a configuration of the Weather Research and Forecasting (WRF) model (hereafter SPoRT-WRF) that includes unique NASA products and capabilities including 4-km resolution soil initialization data from the Land Information System (LIS), 2-km resolution SPoRT SST composites over oceans and large water bodies, high-resolution real-time Green Vegetation Fraction (GVF) composites derived from the Moderate-resolution Imaging Spectroradiometer (MODIS) instrument, and retrieved temperature and moisture profiles from the Atmospheric Infrared Sounder (AIRS) and Infrared Atmospheric Sounding Interferometer (IASI). NCAR's Model Evaluation Tools (MET) verification package is used to generate statistics of model performance compared to *in situ* observations and rainfall analyses for three months during the summer of 2012 (June-August). Detailed analyses of specific severe weather outbreaks during the summer will be presented to assess the potential added-value of the SPoRT datasets and data assimilation methodology compared to a WRF configuration without the unique datasets and data assimilation.